

Fig.: 1

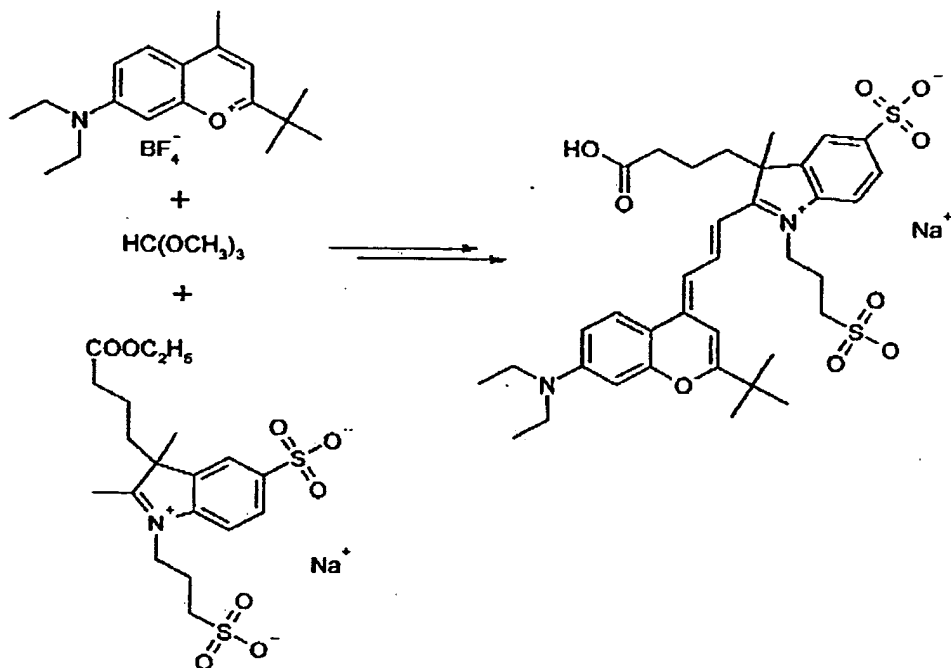


Fig.: 2

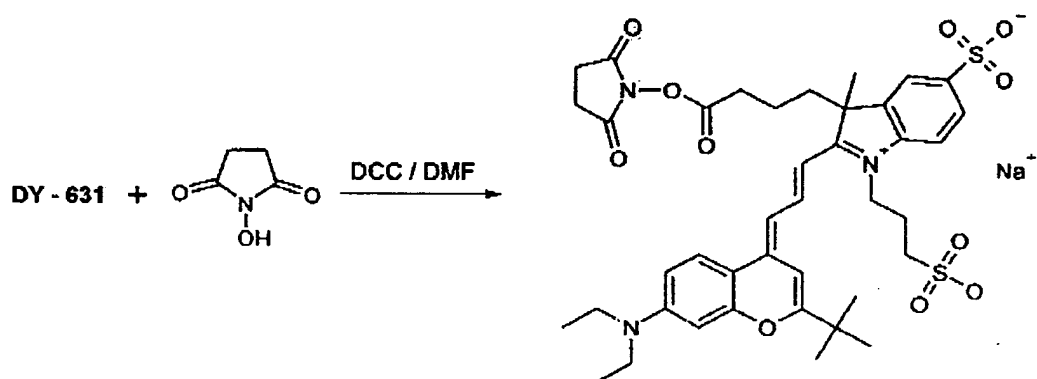


Fig.: 3

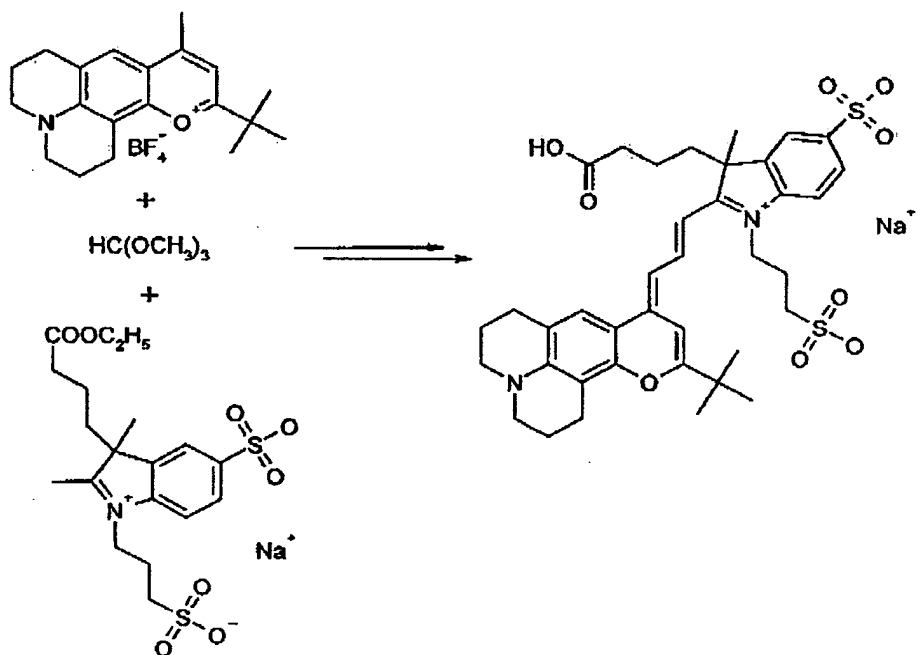


Fig.: 4

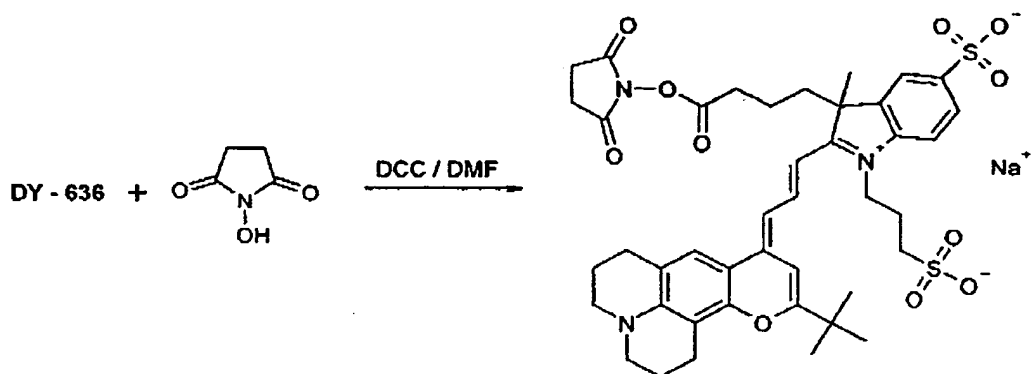


Fig.: 5

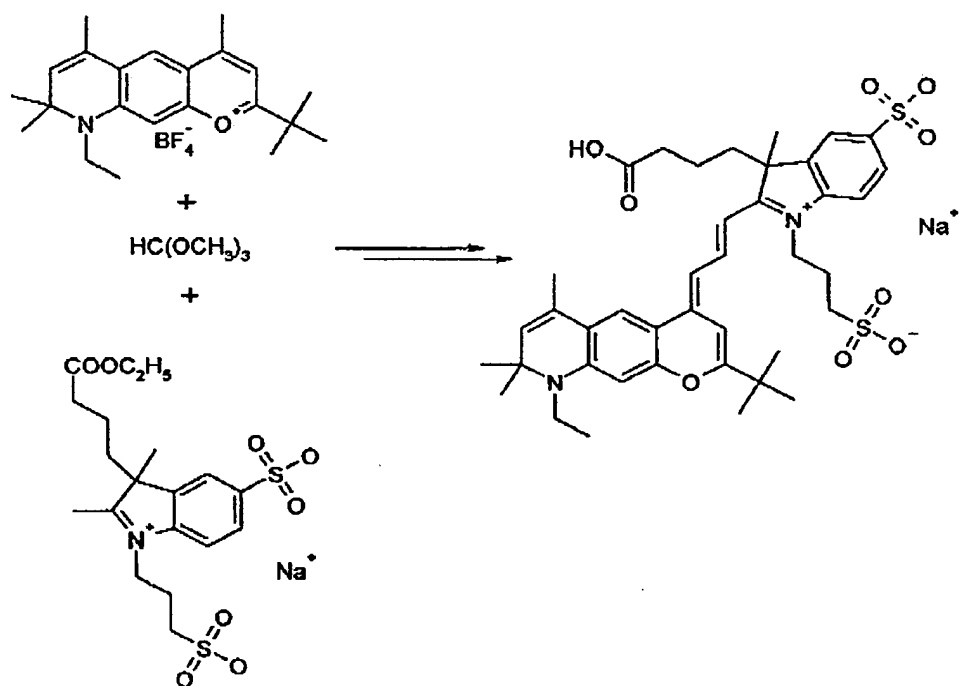


Fig.: 6

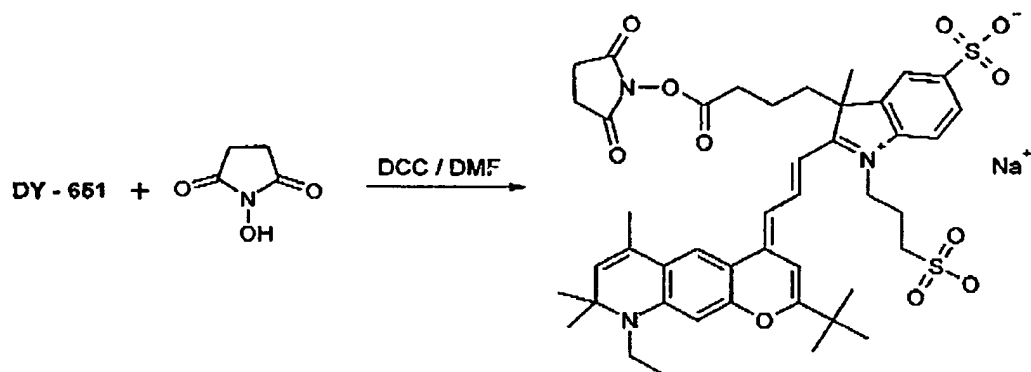
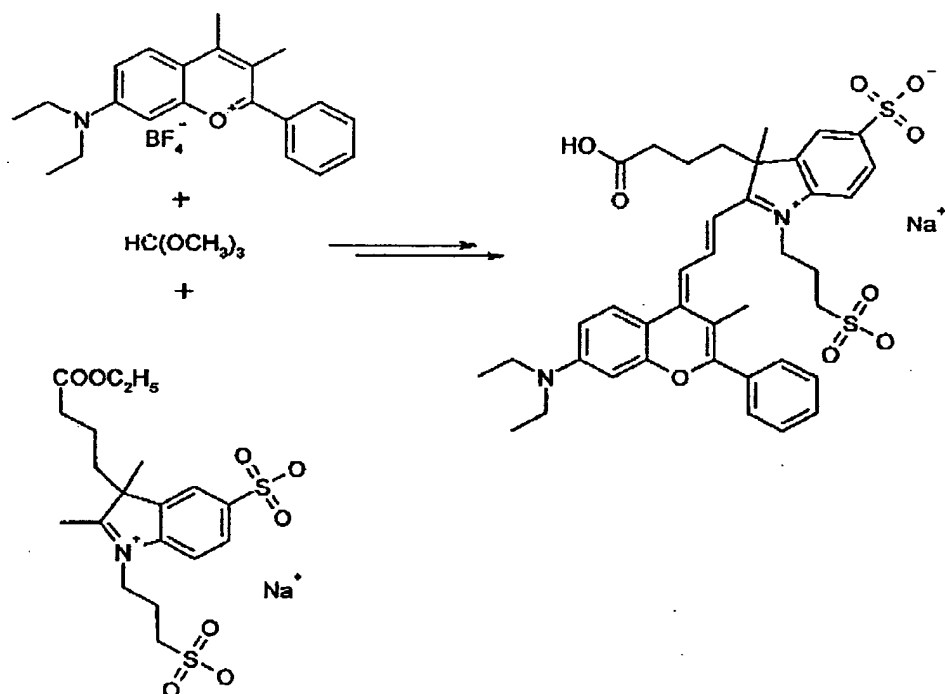




Fig.: 7



DYQ-661 +   $\xrightarrow{\text{DCC / DMF}}$  

The reaction shows the coupling of DYQ-661 with N-hydroxysuccinimide (NHS) in the presence of DCC and DMF. The product is a complex molecule where the NHS group has been converted to a succinimide ring, which is part of a larger structure containing a benzimidazole core, a phenyl group, and a dimethylamino group.

The reaction scheme shows the synthesis of a macrocyclic dye. The reactants are:

- A substituted benzoxazine derivative (top left) with a phenyl group and a  $\text{BF}_4^-$  counterion.
- Triethyl phosphite,  $\text{HC}(\text{OCH}_3)_3$  (middle left).
- A sodium sulfonate salt of a substituted pyrrole (bottom left) with a carboxylate group ( $\text{COOC}_2\text{H}_5$ ) and a sulfonate group ( $\text{SO}_3^-$ ).

The reaction proceeds via a macrocyclization to form the product (right), which is a large macrocycle containing a benzoxazine moiety, a pyrrole moiety, and a sulfonate group.

Fig.: 10

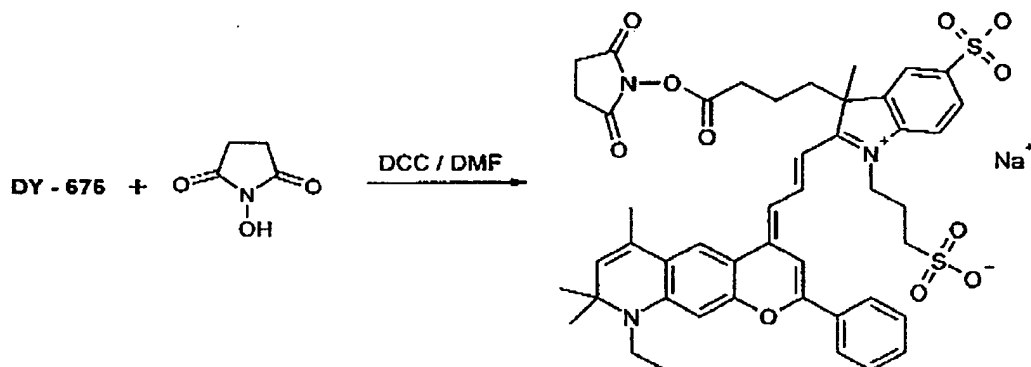
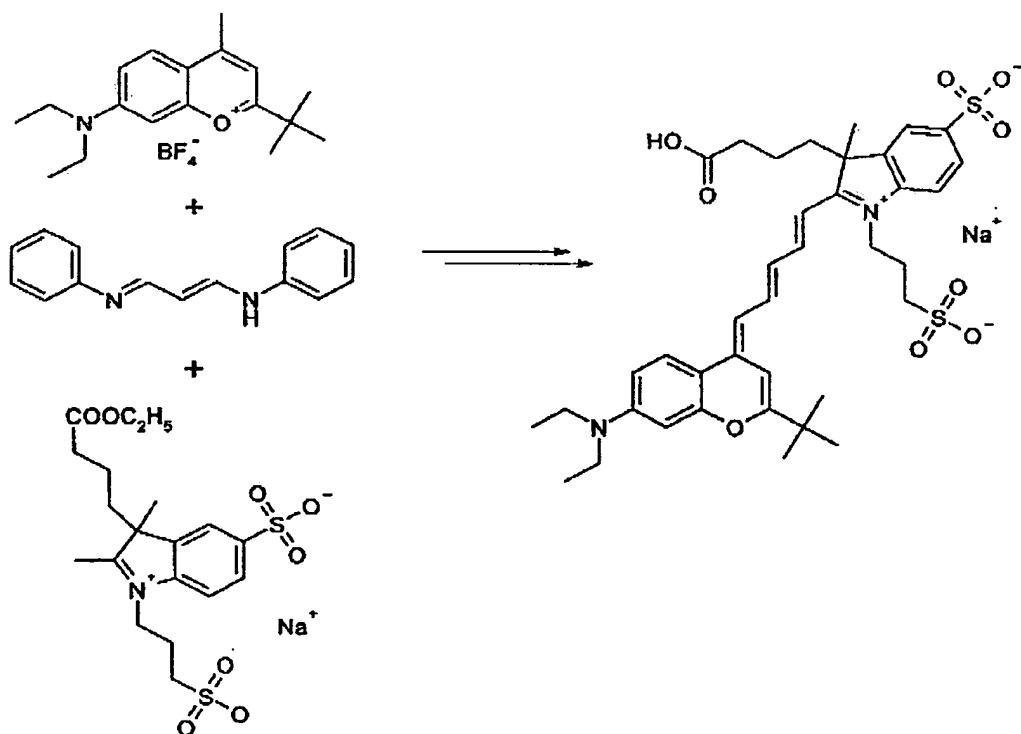


Fig.: 11



[illegible]

Fig.: 14

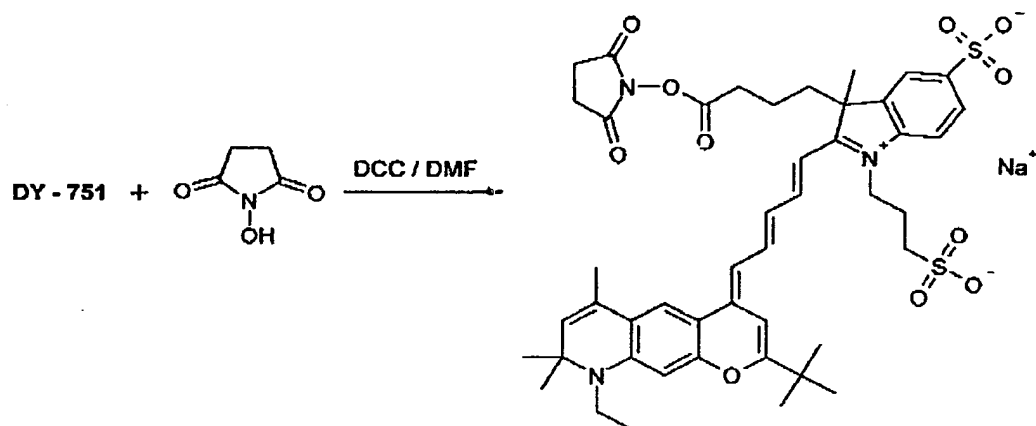


Fig.: 15

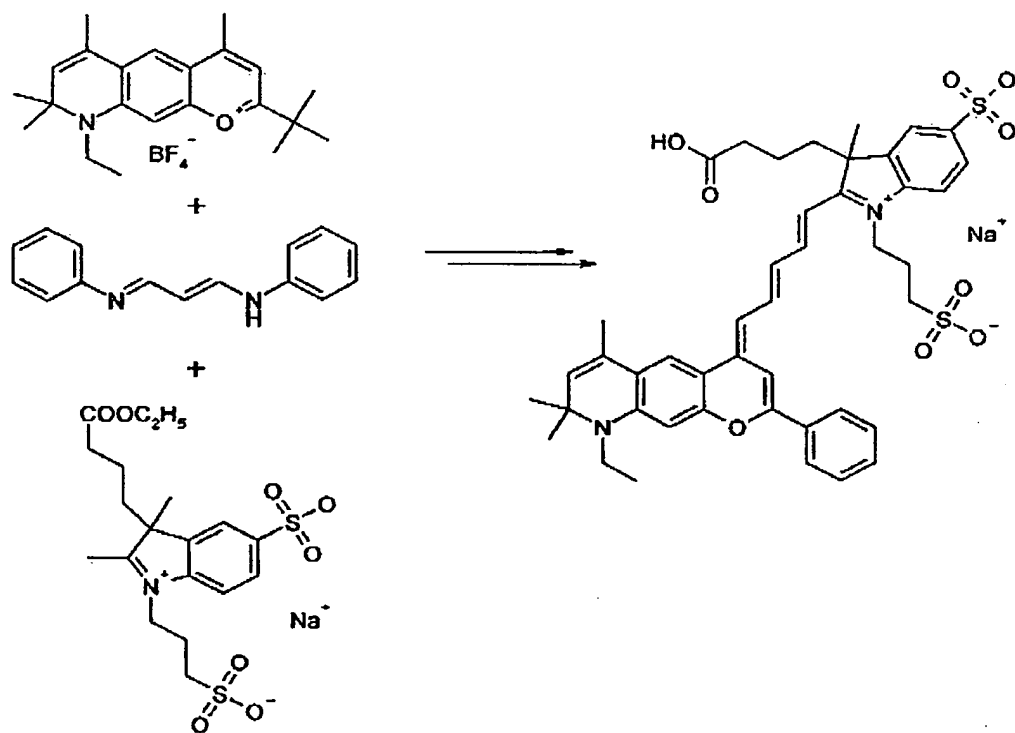




Fig.: 16

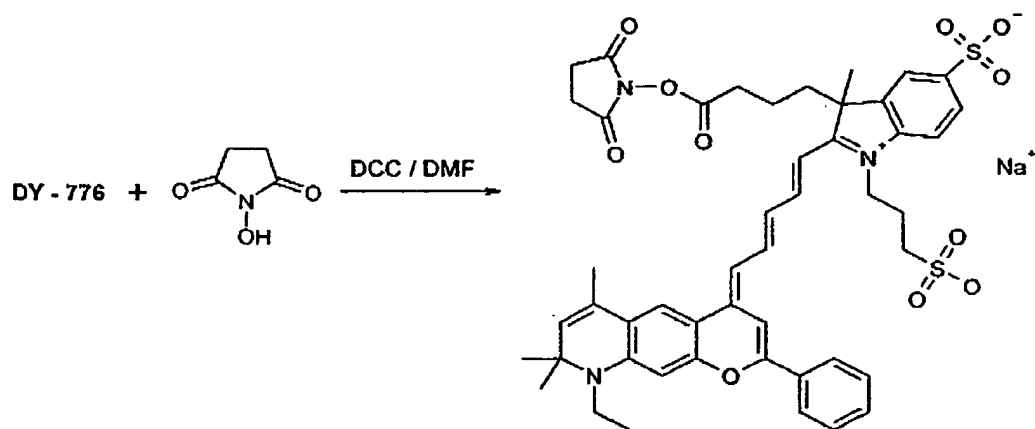


Fig.: 17

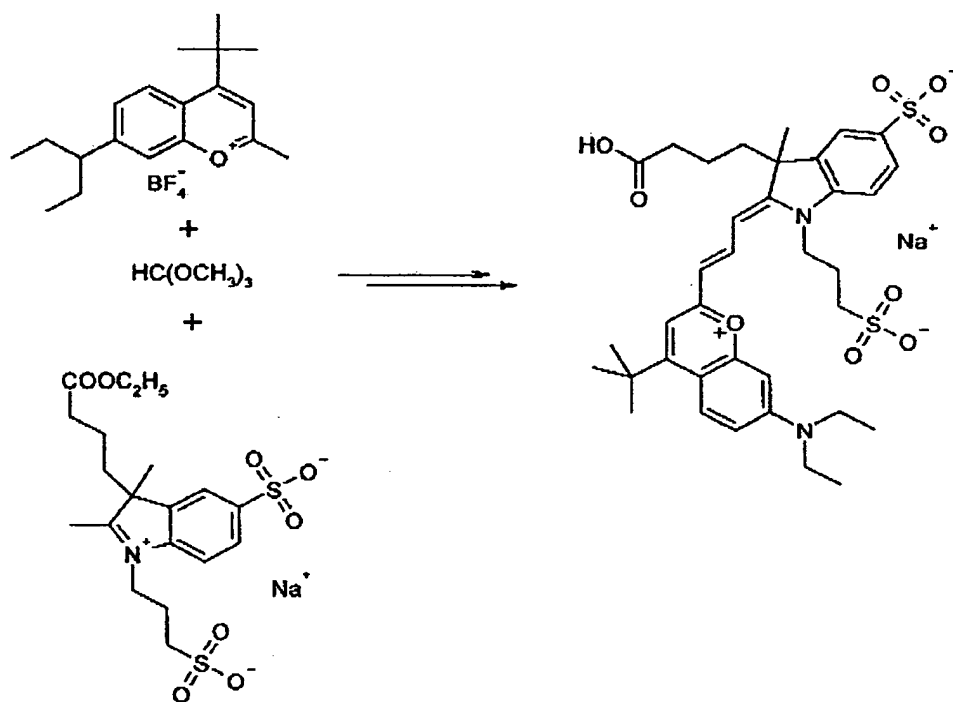


Fig.: 18

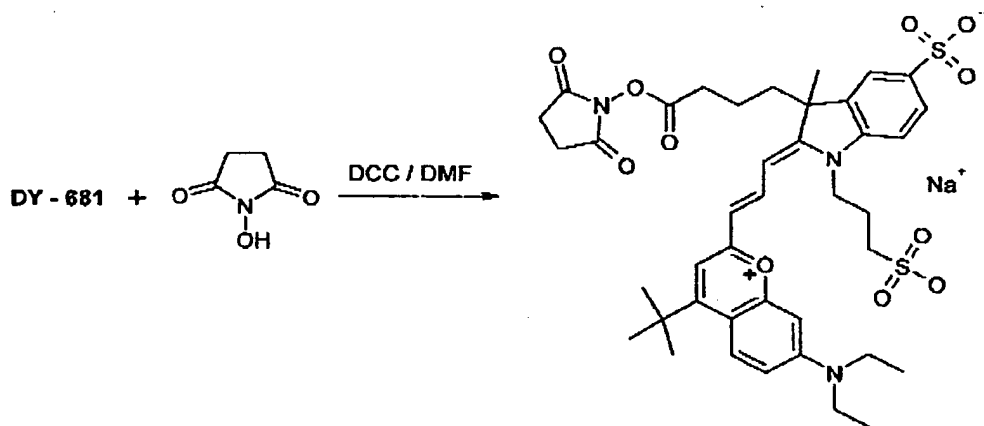


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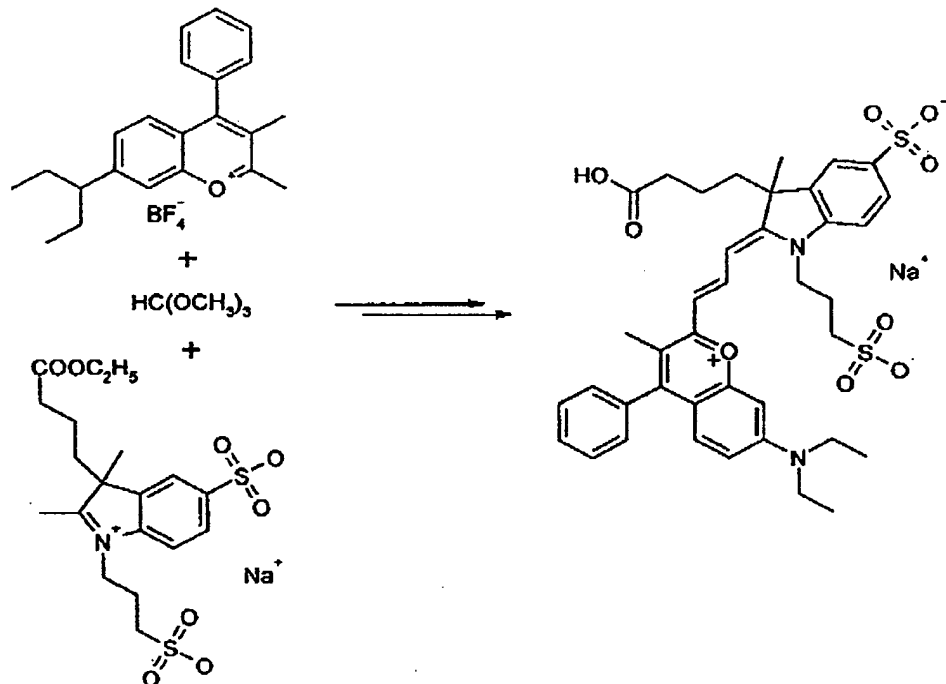


Fig.: 20

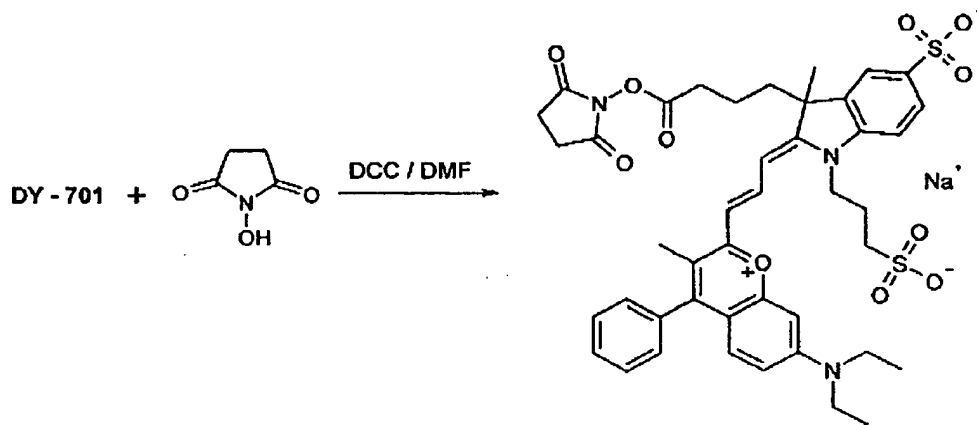


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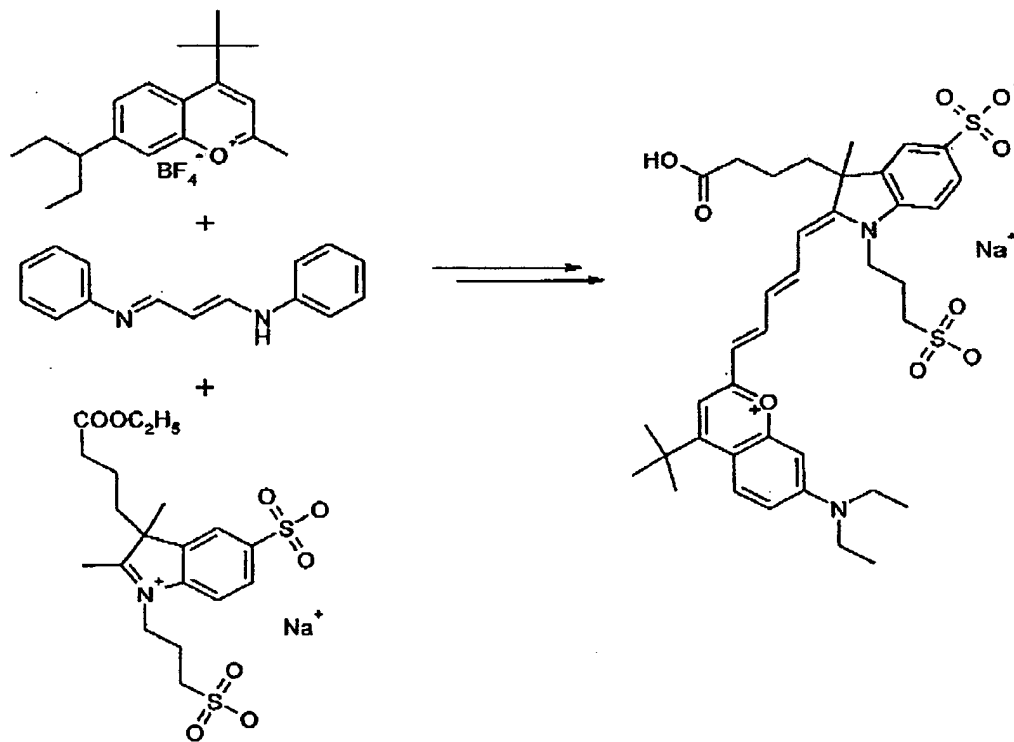


Fig.: 22

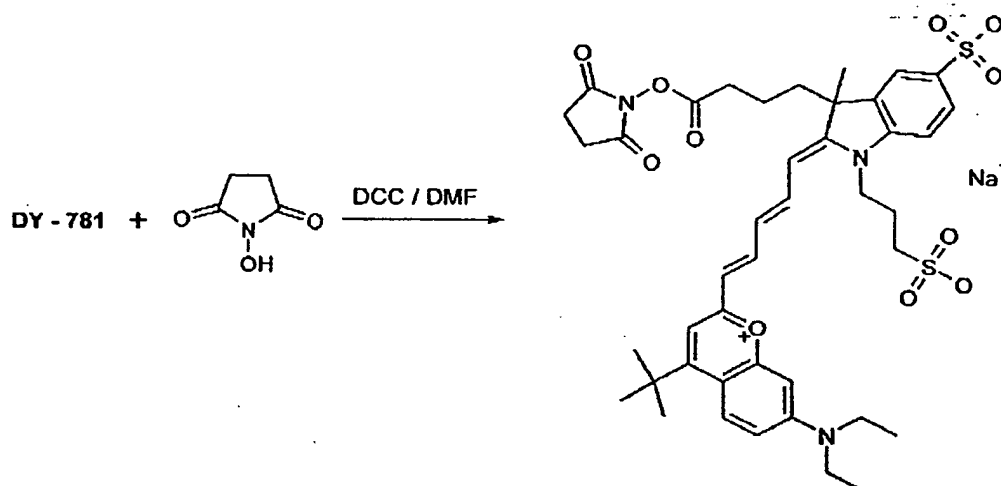


Fig.: 23

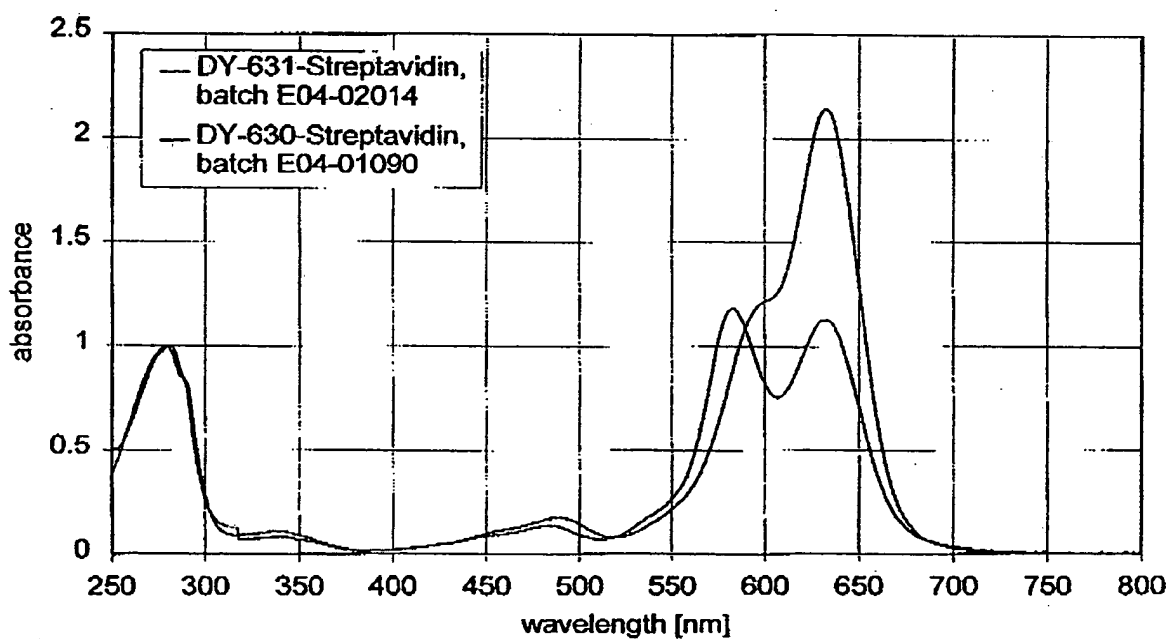


Figure 23 shows the normalized absorption spectra of two streptavidin conjugates obtained by reacting DY-631-NHS esters or DY-630-NHS esters with streptavidin in the molar ratio of 2:1. The advantage of the new markers is very clearly apparent from the clearly reduced aggregation band for the DY-631 conjugate at 580 nm.

Fig.: 24

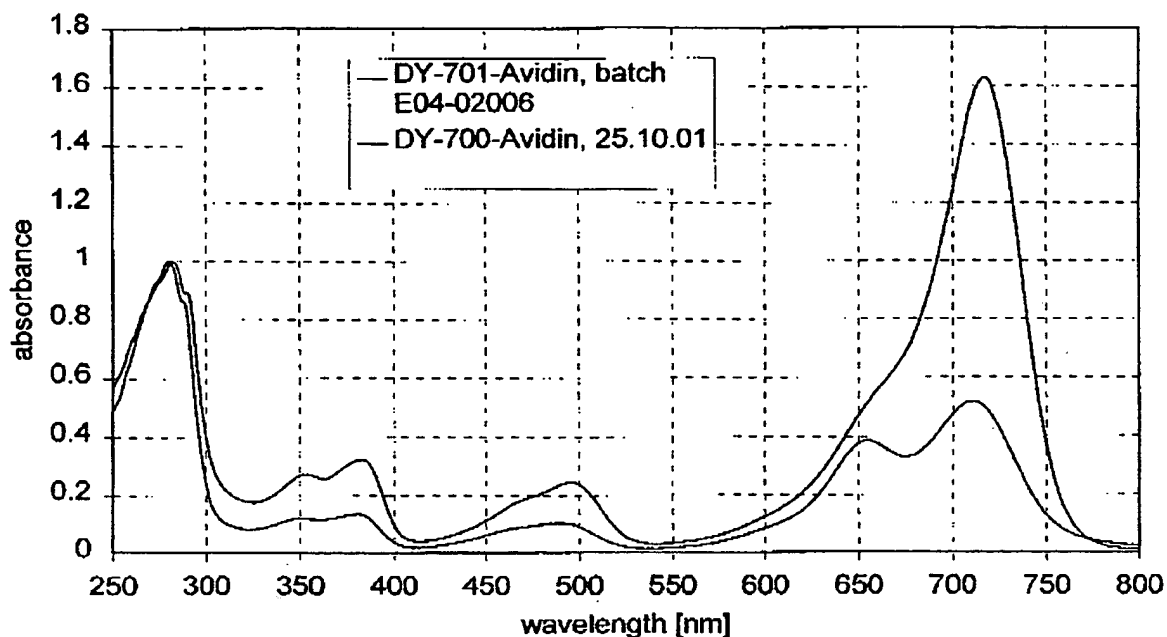


Figure 24 shows the normalized absorption spectra of two streptavidin conjugates obtained by reacting DY-701-NHS esters or DY-700-NHS esters with streptavidine in the molar ratio of 2:1. The advantage of the new markers is very clearly apparent from the reduced aggregation band for the DY-701 conjugate at 650 nm.